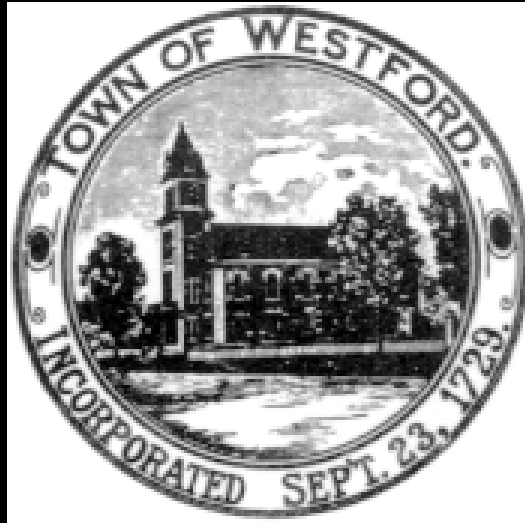


Town of Westford Pavement Management Study



2009

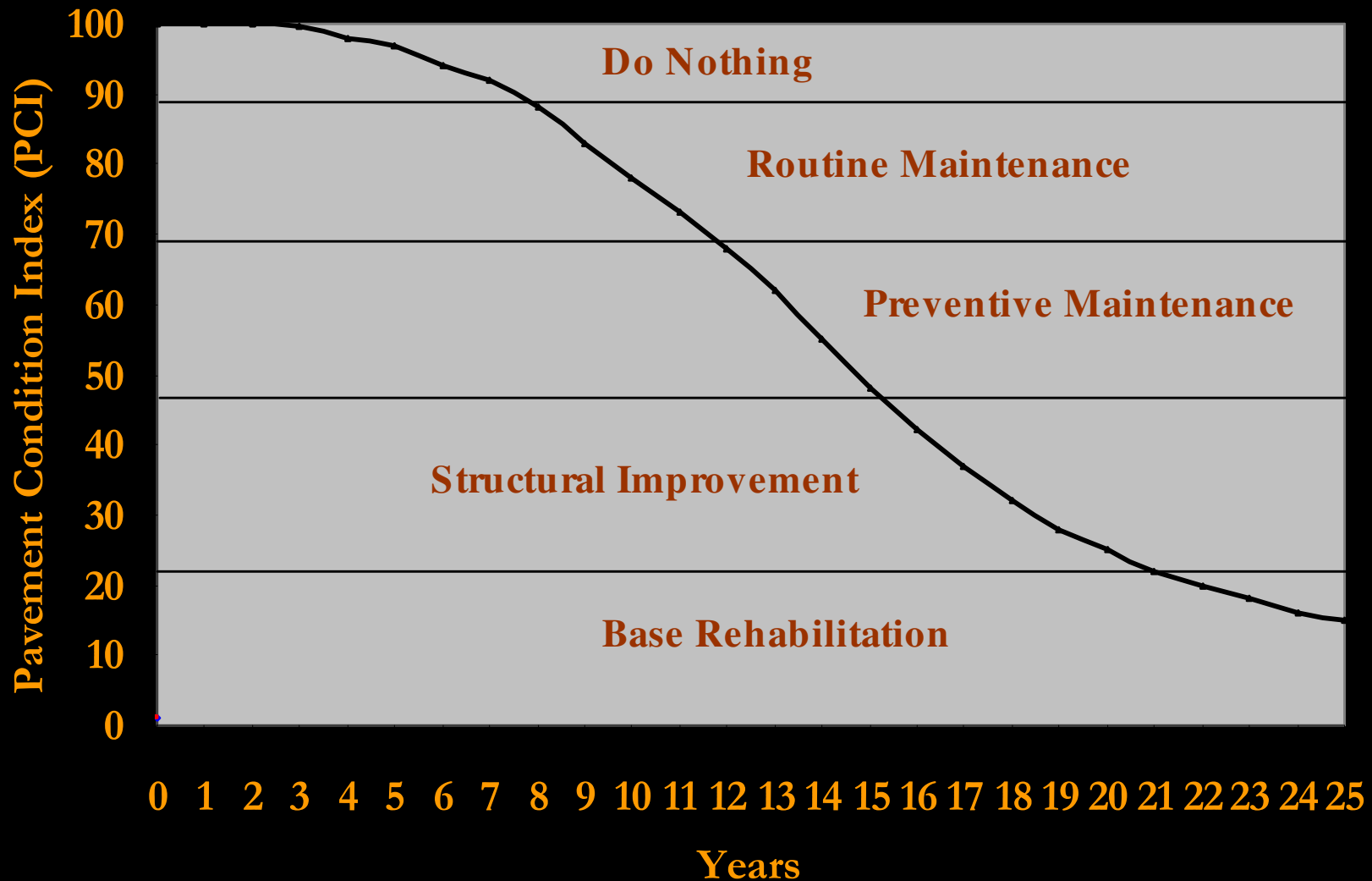
Fay, Spofford & Thorndike

Study Methodology

- FST conducted Town-wide Pavement Condition Inventory (Public Roads Only)
- Pavement distress identification and quantification was performed on all road segments (Visual Inspection Only)
- Pavement Condition Index (PCI) calculated on a 0 to 100 scale
- Calculated a Network Priority Ranking (NPR) for each segment

Study Methodology

PCI Treatment Bands



Do Nothing Condition

PCI = 98

Depot Street from 950' S. of Riley Road to 150' S of Plain Road



Routine Maintenance Condition $PCI = 75$

South Chelmsford Rd. from 200' S. Craig Circle to Chelmsford Town Line



Preventive Maintenance Condition **PCI = 49**

Old Lowell Road from Carlisle Road to South Chelmsford Road



Structural Improvement Condition $PCI = 43$

Russell Way from 100' S. of Caldwell Drive (N) to Chandler Road



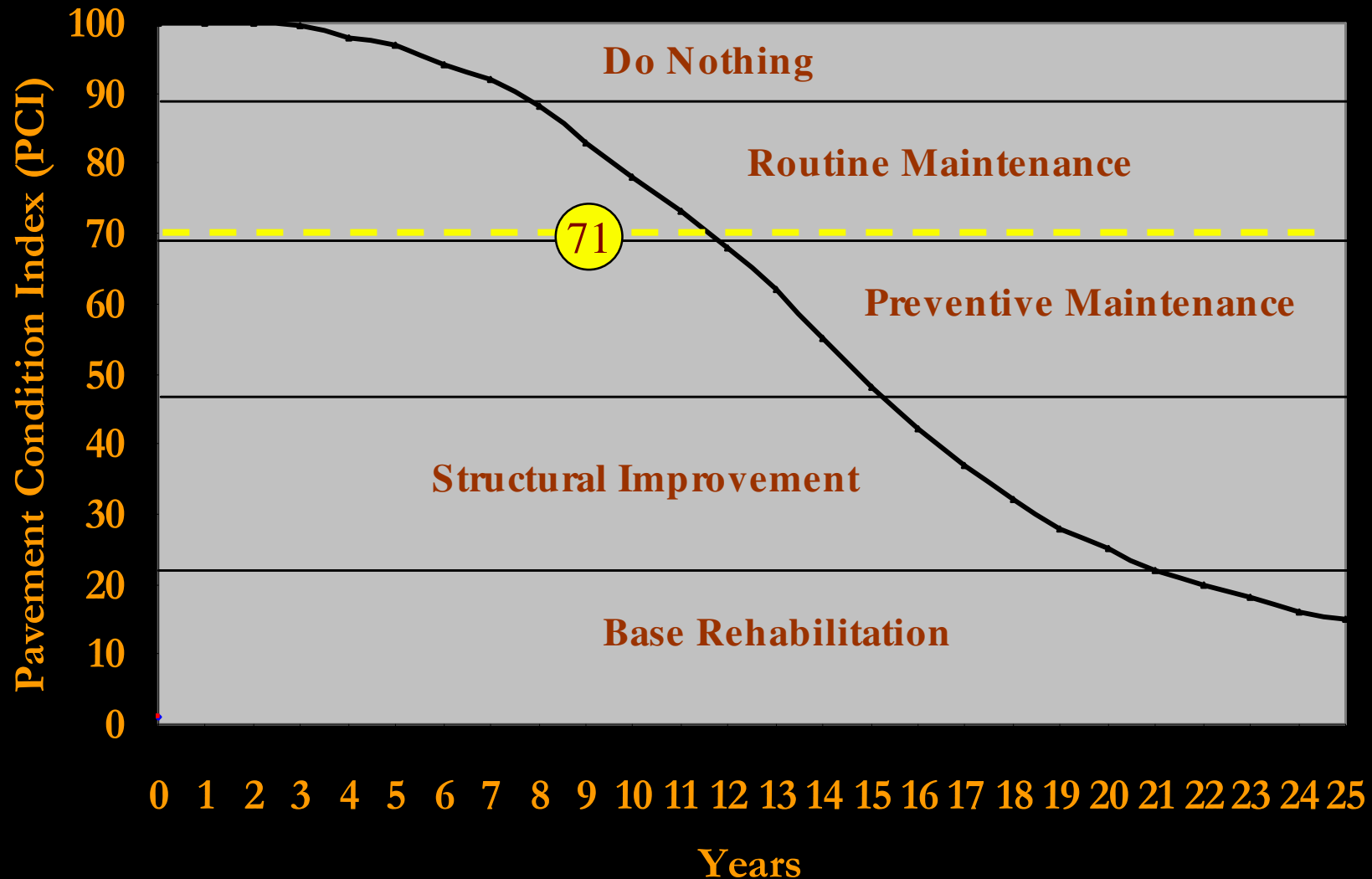
Base Rehabilitation Condition PCI = 19

Kings Road from Banbury Drive (E) to Banbury Drive (W)



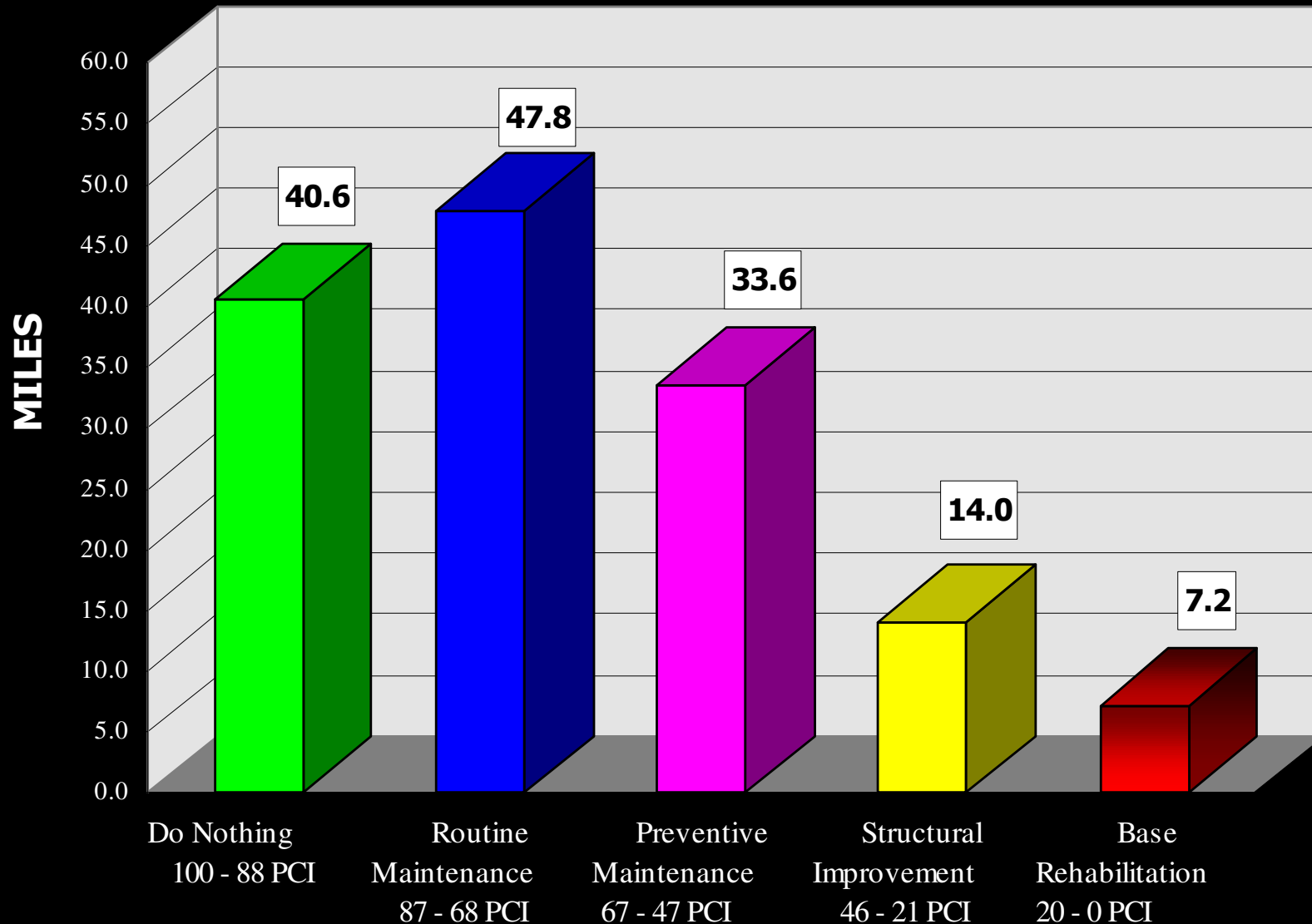
Town-Accepted Streets Spring 2009

Average Pavement Condition = 71

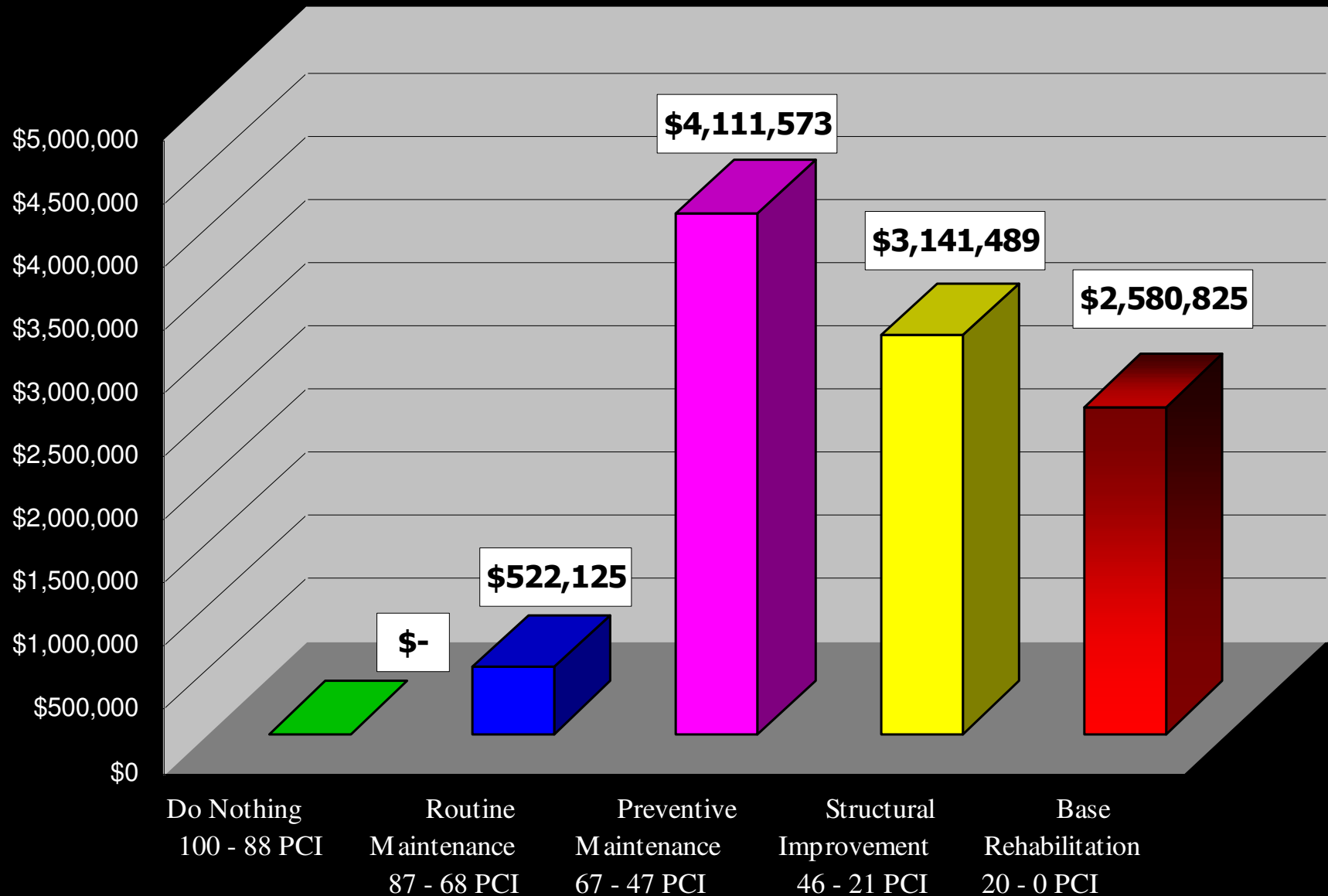


Existing Street Conditions

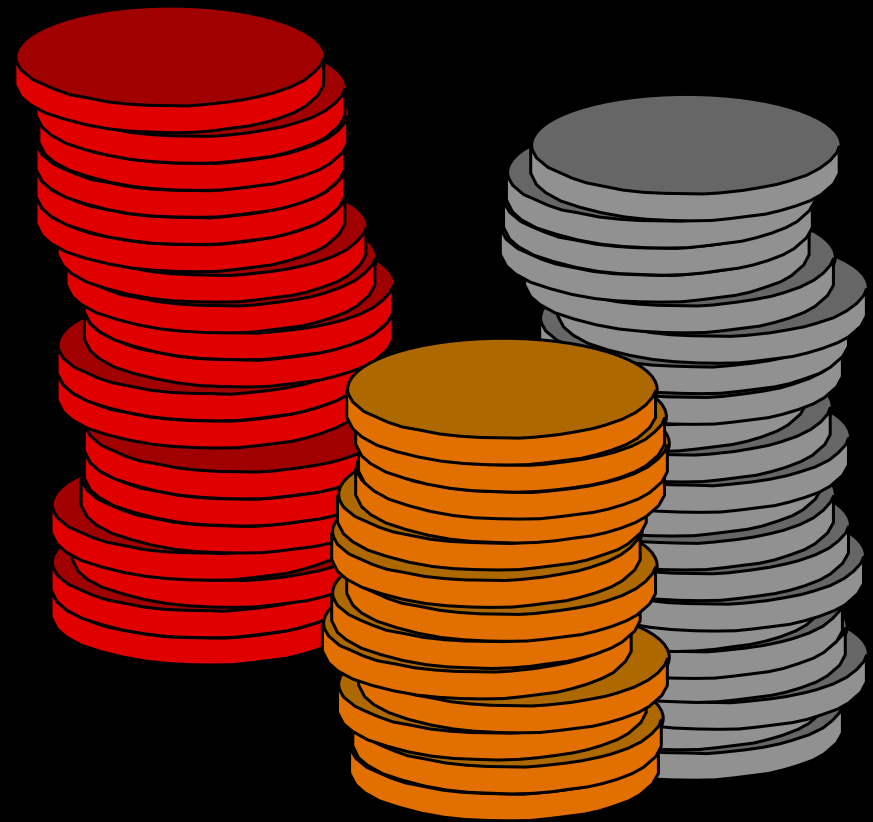
143.2 Town-Accepted Road Miles



Backlog of Outstanding Road Repairs: ***\$10,356,011 (2009 Dollars)***

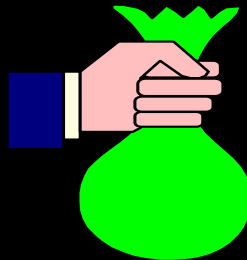


Solution To Manage this Backlog...



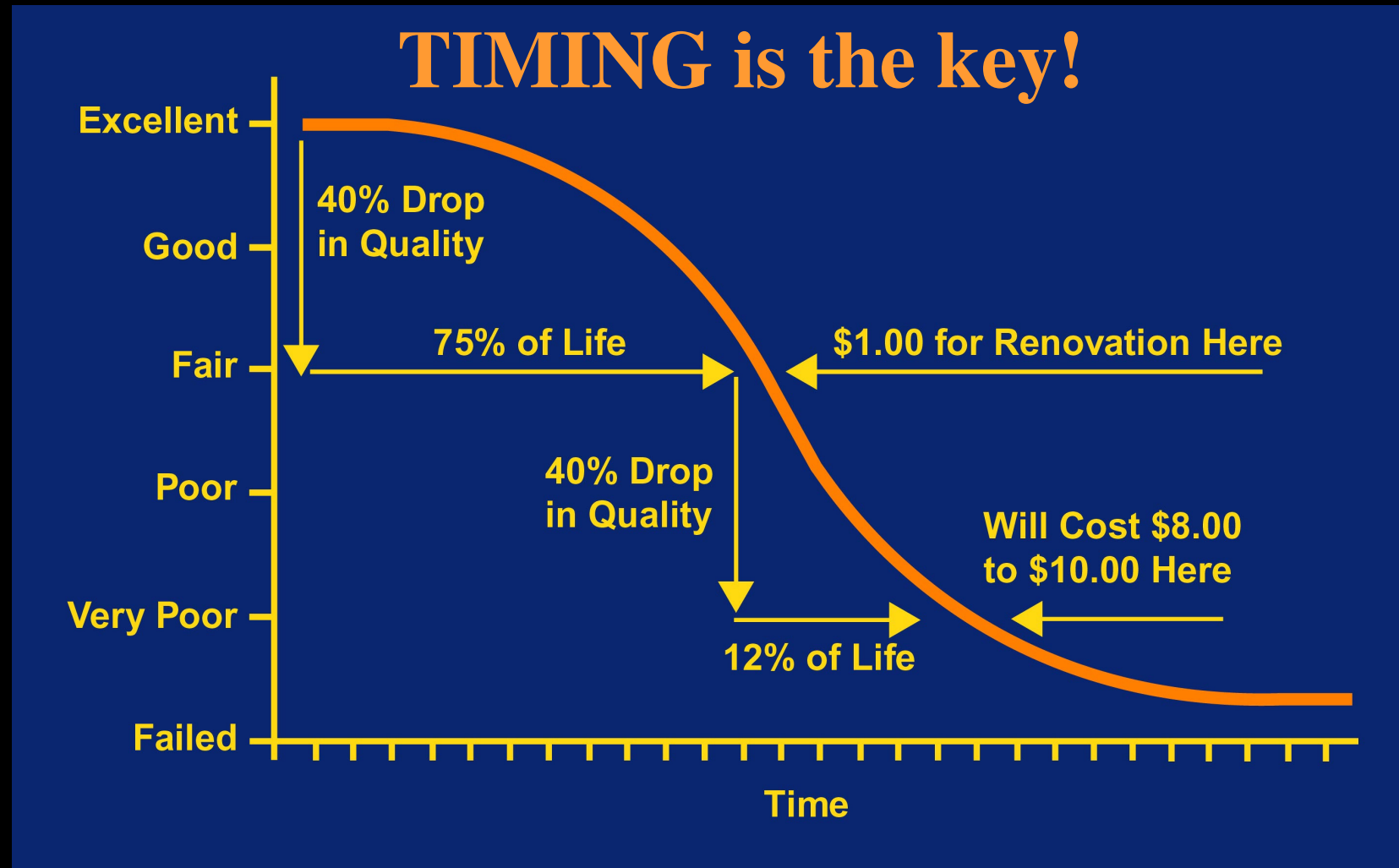
Adhere to Pavement Management Theory

- Make Timely Maintenance Repairs
- Address Major Rehabilitation Needs as Funding allows



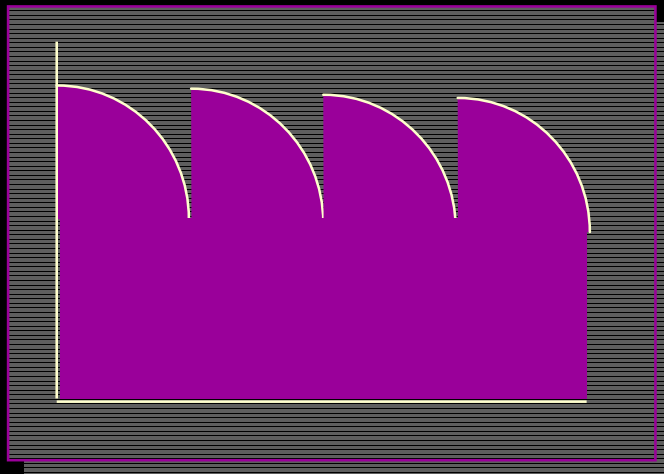
Pavement Management Theory

Pavement Deterioration Curve



Pavement Management Theory

Reduced Life Cycle Costs

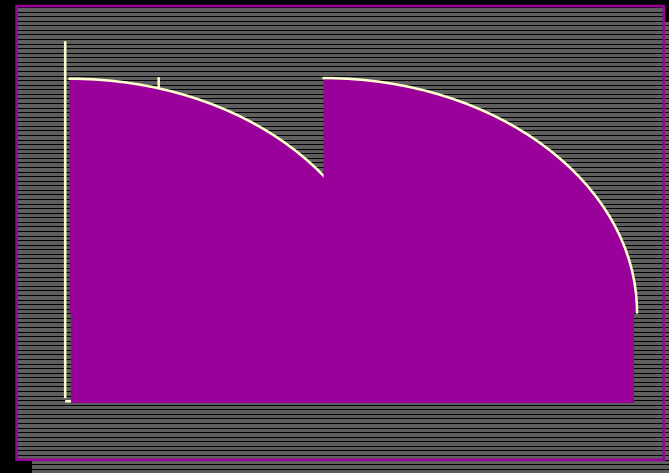


Repeated Surface Seals

\$12.87/sq yd

Deferring Reconstruction

\$71.19/sq yd

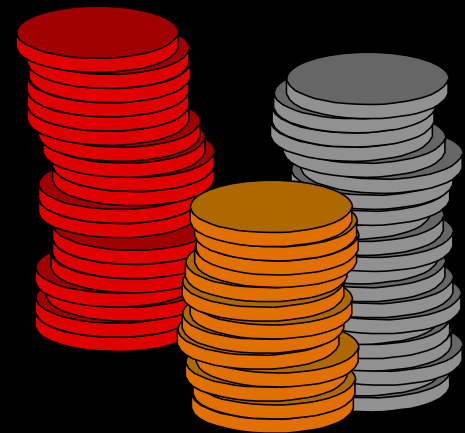


5 Alternative Funding Scenarios

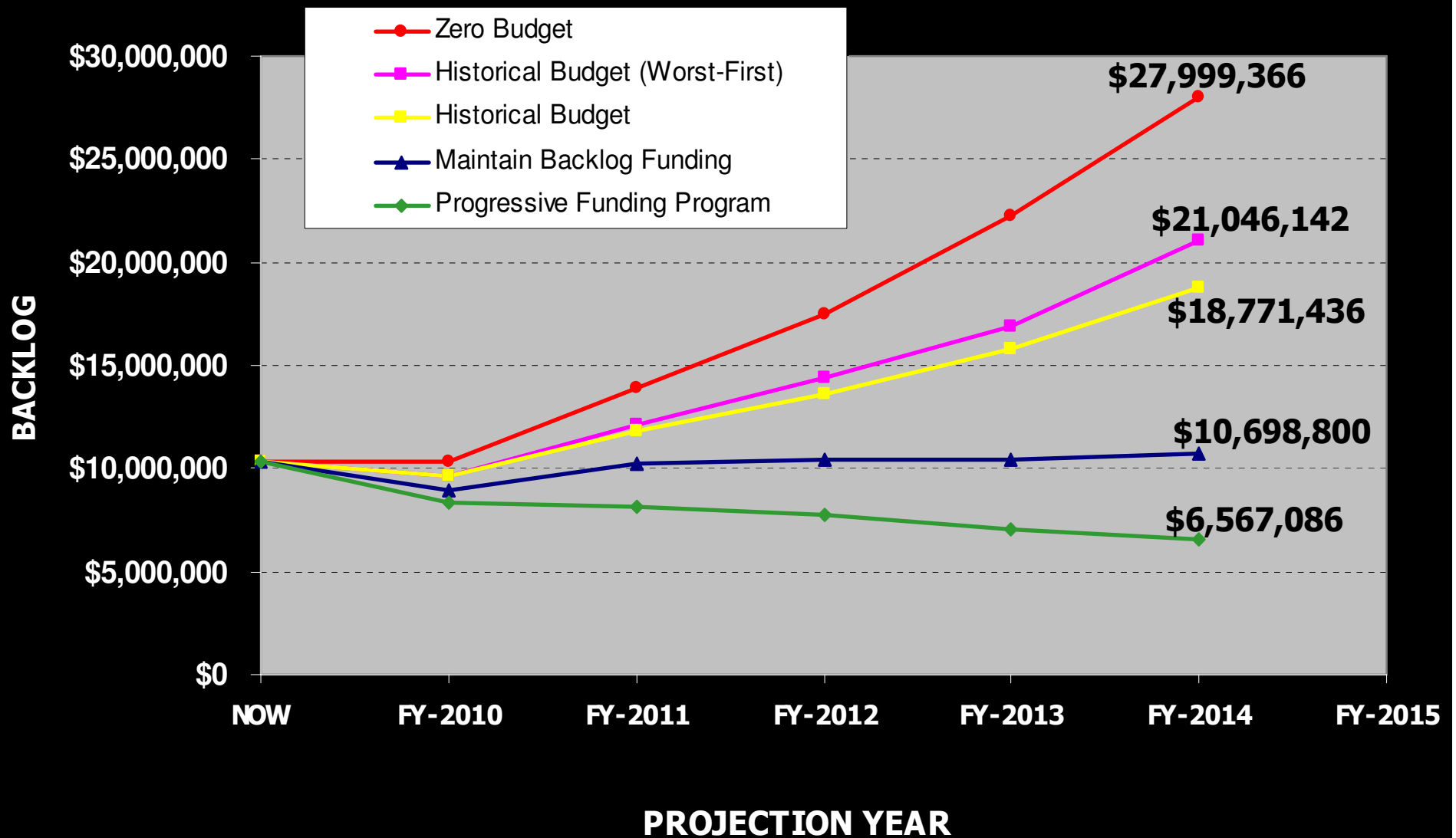
Town-Accepted Streets

(Reflects Pavement Rehabilitation costs only)

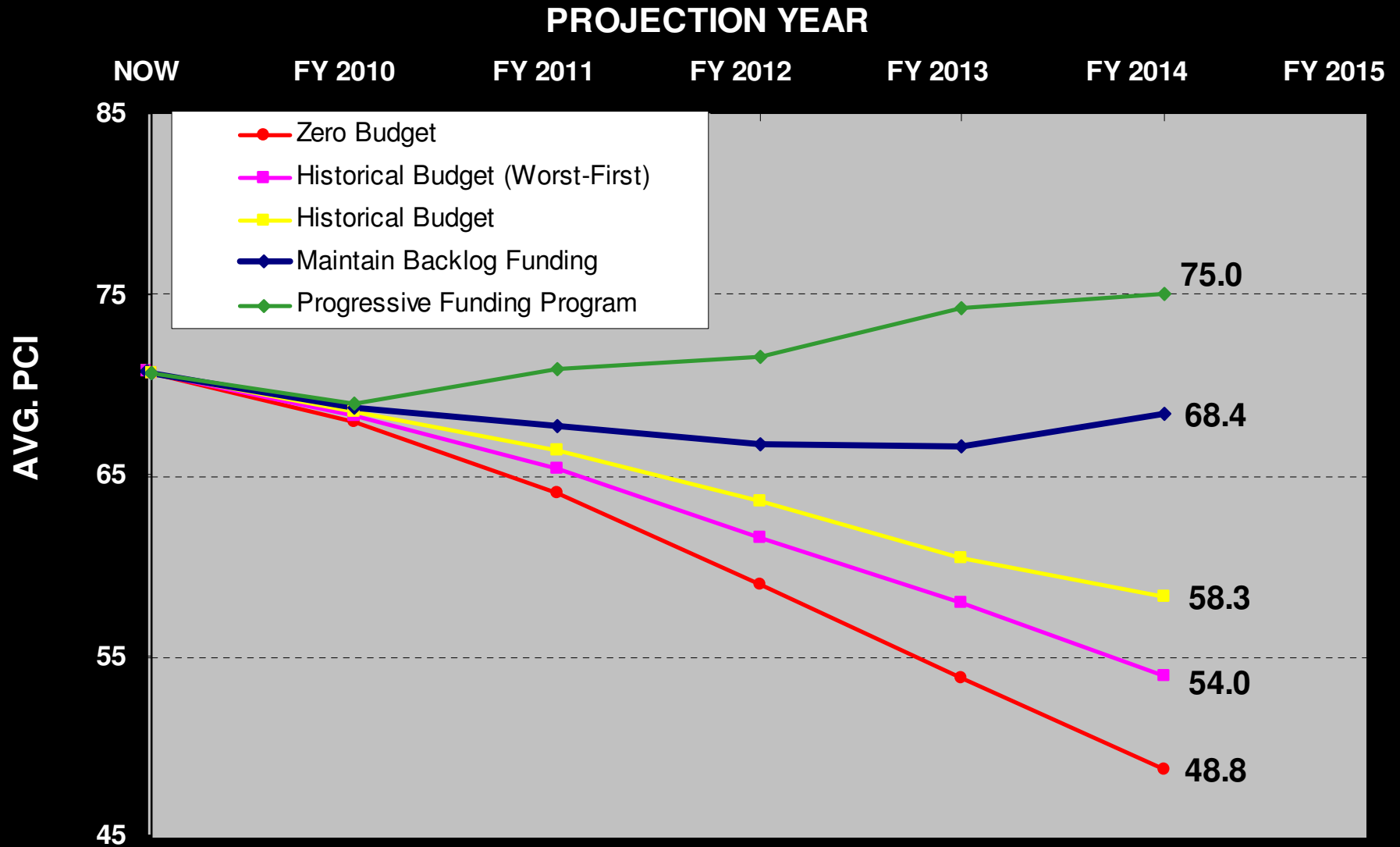
- 1. Zero Budget** - \$0/yr for 5 years
 - Worst-Case Scenario
- 2. Historical Budget (Worst-First)** - \$690,000 annually for 5 years
 - Prioritize poor roads
- 3. Historical Budget (Best-First)**
 - Prioritize good roads
- 4. Maintain Backlog Funding Scenario**
 - \$1,400,000 for FY 2010 & FY 2011
 - \$1,700,000 for FY 2012
 - \$2,000,000 for FY 2013 & FY 2014
- 5. Progressive Funding Scenario**
 - \$2.0M/yr for 5 years



Westford Town Accepted Streets 5 Year Backlog Projection



Westford Town Accepted Streets 5 Year PCI Projection



Recommendations

Westford should:

- Increase Local Roadway Funding:
 - Chapter 90 isn't enough...
- Practice Preservation Maintenance:
 - Crack seals
 - Micro-Surfacing/Nova Chip/Chip Seals
- Rehabilitate poor roads as funding allows:
 - Perform project level evaluations
 - Design for Cost Effective Alternative Treatments
- Continue Asset Management:
 - Pavement Management is an on-going Process

Questions ... Comments ...

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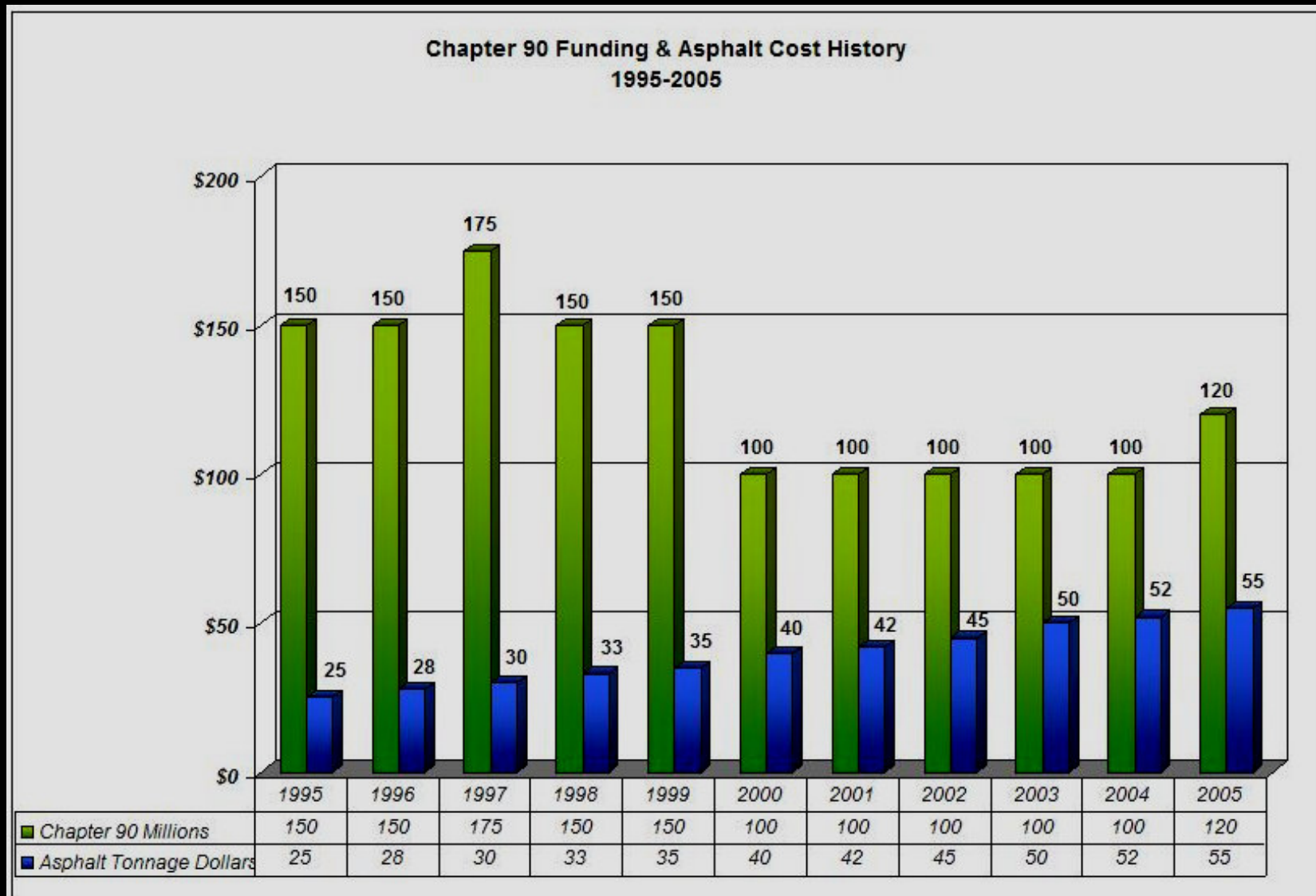
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Fay, Spofford & Thorndike

Chapter 90 Funding & Asphalt Cost History 1995-2005

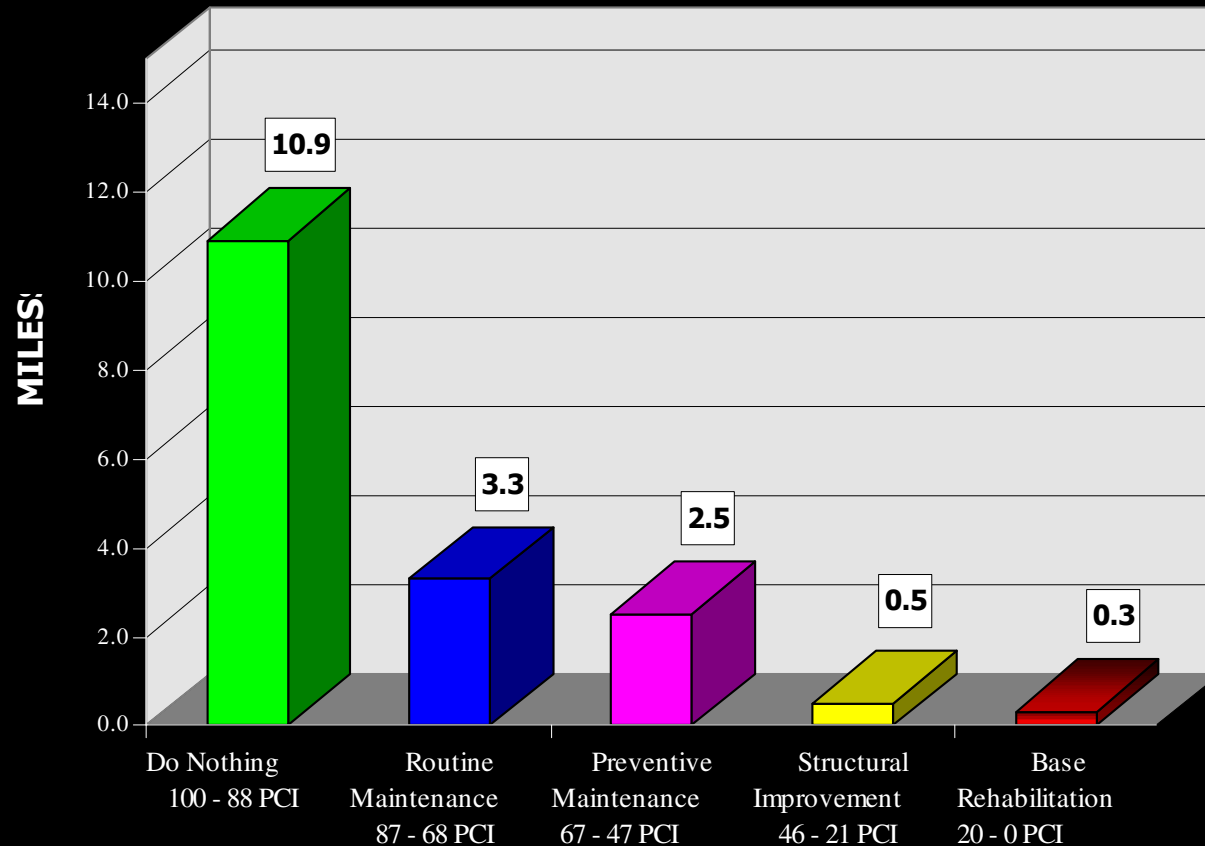


Town of Nahant 2005

\$501,885 Backlog

PCI = 81

17.5 Town Maintained Road Miles



Town of Nahant Backlog per Mile: \$28,679

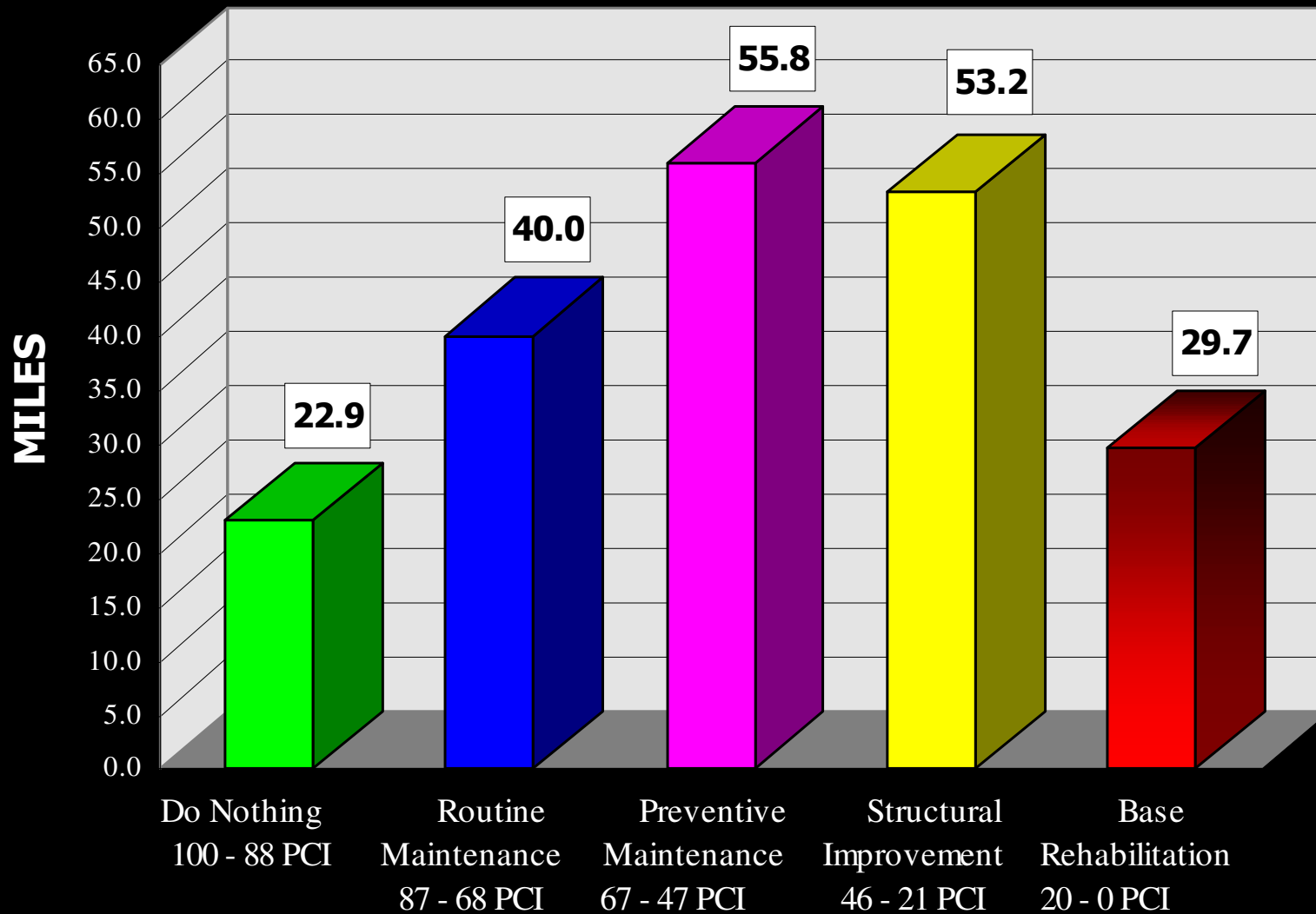
Town of Bedford Backlog per Mile: \$128,433

City of Quincy 2004

\$23,434,279 Backlog

PCI = 53

201.6 City Maintained Road Miles

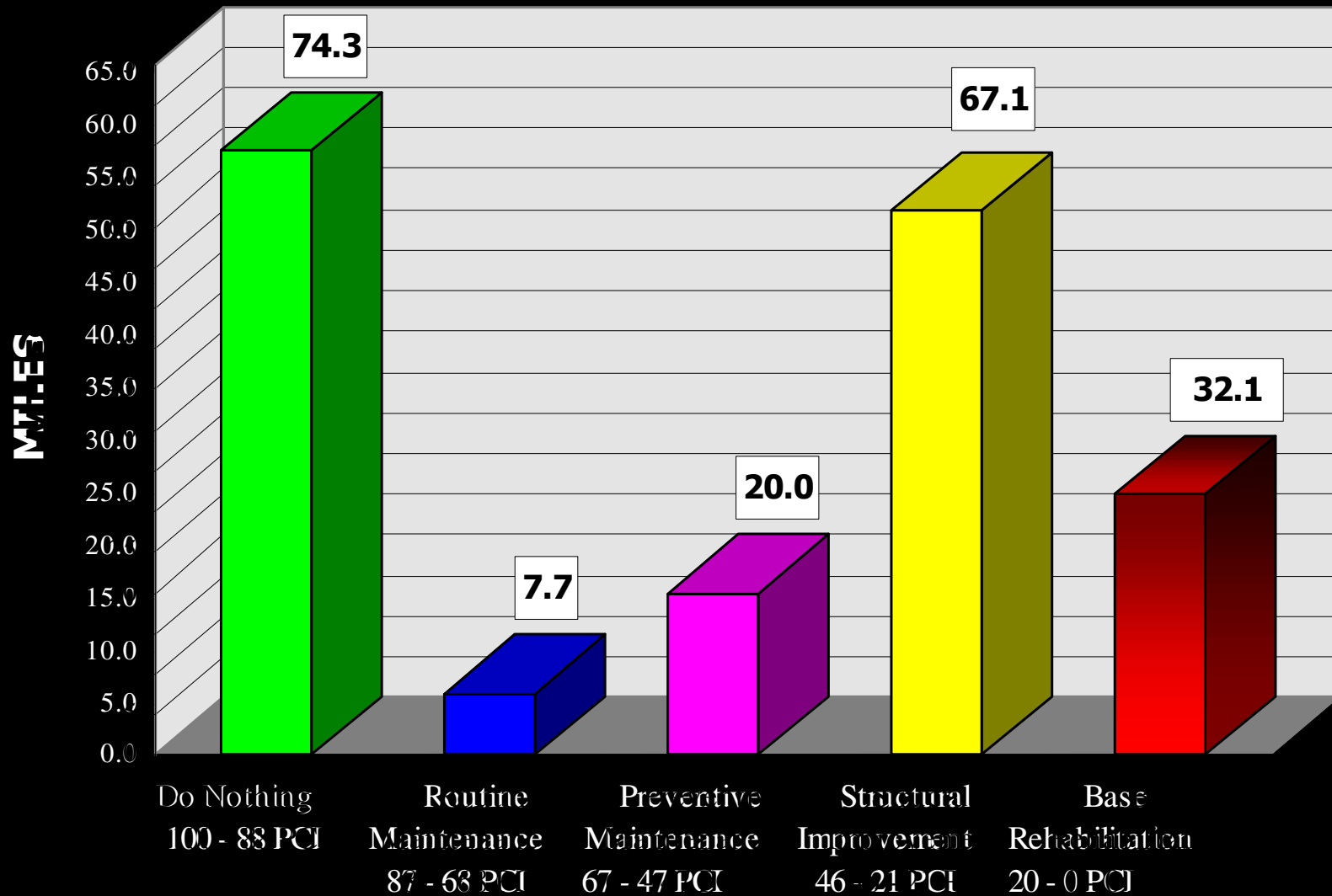


City of Quincy 2005

\$26,790,000 Backlog

PCI = 58

201.6 City Maintained Road Miles

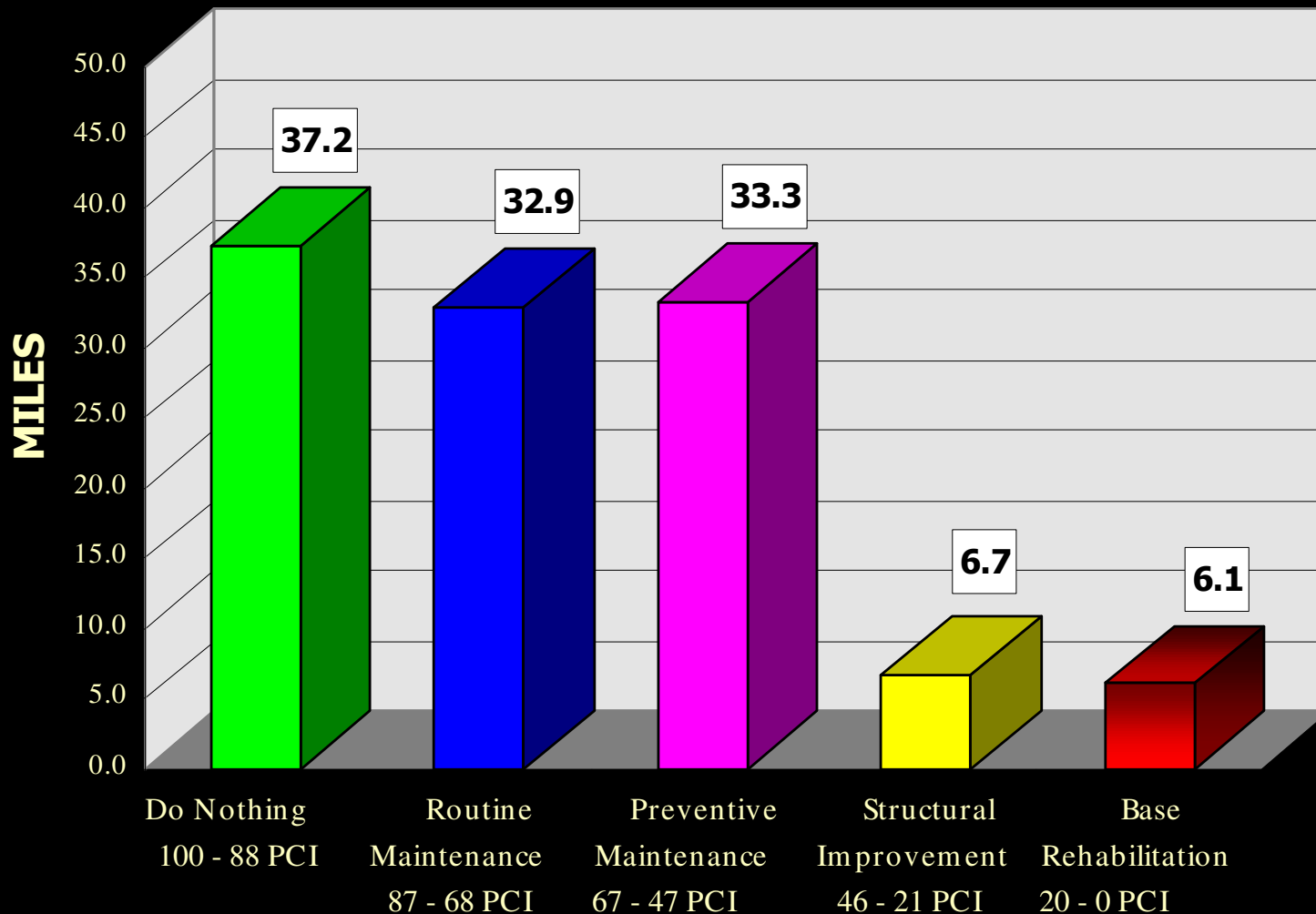


Town of Hopkinton 2002

\$3,832,865 Backlog

PCI = 73

116.2 Town Maintained Road Miles



Pavement Management Theory

Preservation Maintenance Curve

